Top Secret

[redacted]

DIRECTORATE OF
INTELLIGENCE

Industrial Facilities
(Non-Military)

Basic Imagery Interpretation Report

Omsk Petroleum Refinery

Omsk, USSR

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DATE JUNE 1969
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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME	COUNTRY
Omsk Petroleum Refinery	UR

UTM COORDINATES	GEOGRAPHIC COORDINATES
43UCB875045	55-04-25N 073-13-25E

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MAP REFERENCE
8th RTS. USATC Series 200, Sheet MO163-10HL, 3rd edition, April 1967, Scale 1:200,000
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LATEST IMAGERY USED	NEGATION DATE (If required)
	Not Required

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ABSTRACT

This report is a detailed imagery-derived analysis of the Omsk Petroleum Refinery. When the refinery was first seen on photography in August 1957, about 50 percent of the refinery processing units were complete and in operation. By June of 1964, nearly all of the major processing facilities had been completed, and since then there have been only minor additions. The refinery produces straight-run and blended gasolines, various grades of fuel oils, light ends and lubricating oil.

The refinery appeared to be in operation on all photography from August 1957 through 12 February 1969.

This report includes a detailed line drawing and photograph of the installation, mensuration of significant features, chronological data, a functional analysis, and reference data.

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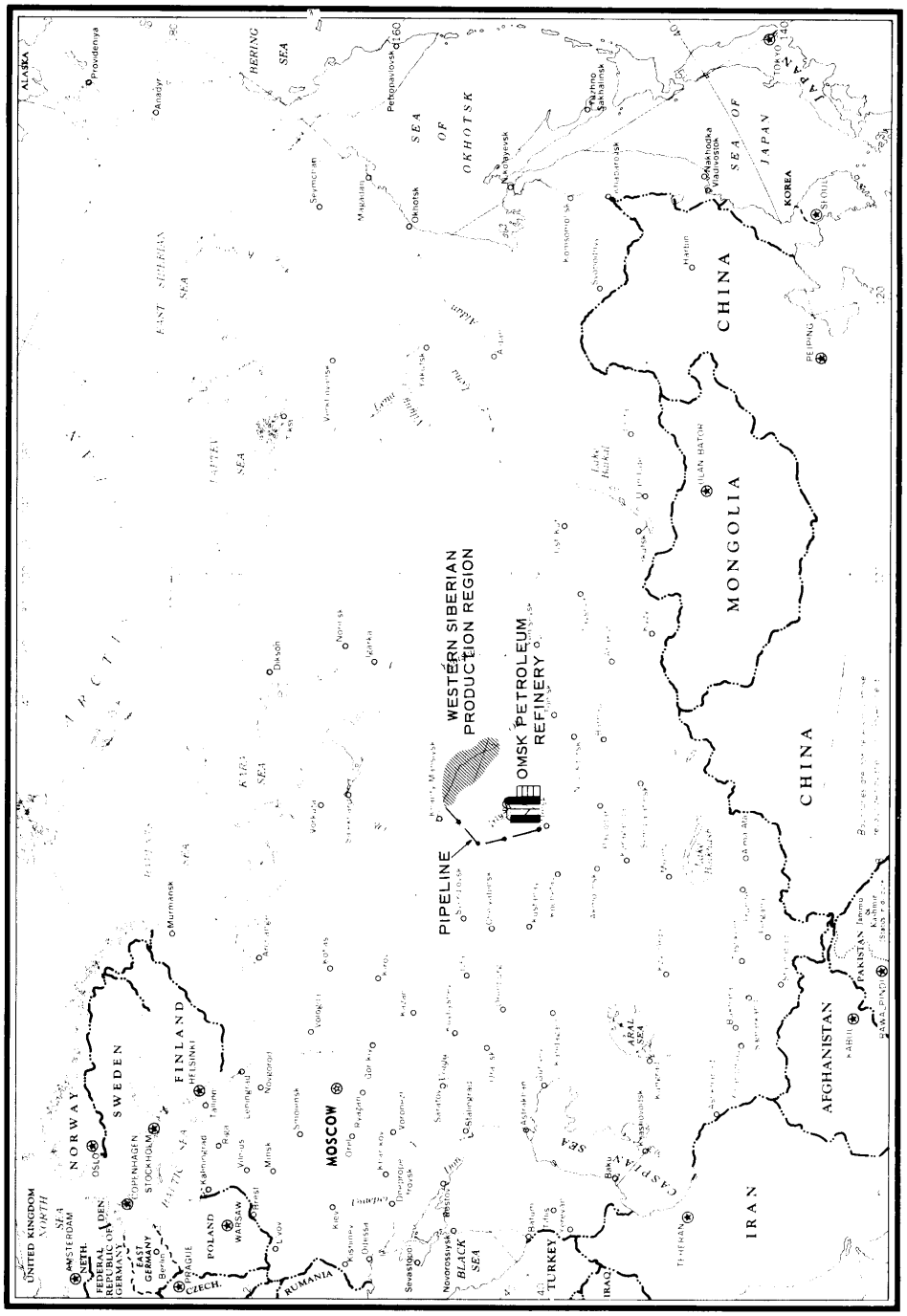

FIGURE 1. LOCATION MAP.

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INTRODUCTION

The Omsk Petroleum Refinery is located approximately 8 nautical miles (nm) northwest of the city of Omsk, on the right bank of the Irtysh River.

The Omsk Heat and Thermal Power Plant TETS 3 Petroleum Refinery [redacted] is located approximately 0.5 nm southeast of the refinery. A petrochemical plant is located immediately east of the refinery. 25X1 25X1

A pipeline probably brings crude oil to the refinery from the Western Siberian Production Region.

BASIC DESCRIPTION

Physical Features

The refinery is expansive in design, measures approximately 9,500 feet by 11,150 feet, and includes an area of about 2,430 acres.

Operational Functions

The refinery processes crude oil into refined petroleum products. These include straight-run and blended gasolines, various grades of fuel oils, light ends, and lubricating oil.

Status and Activity

Approximately 50 percent of the processing units were complete and in operation when the refinery was first observed on photography of August 1957. The remainder of the refinery was, for the most part, constructed between August 1957 and 5 June 1964, with only minor additions after the latter date. On photography of [redacted] minor construction activity was apparent in the waste gas disposal and support area (Area W, Figure 3). 25X1

The refinery appeared in operation on all photographic missions from August 1957 through [redacted] as evidenced by emissions from the power plant, the cooling towers, and the flare towers, and by the presence of large amounts of railroad rolling stock in the yard just outside of the southeast corner of the refinery area. 25X1

Facilities and Equipment

The following table lists the functional areas and facilities within the refinery. Precise identification of processing units was frequently impossible because of the small scale and/or quality of the imagery covering the complex. In some cases, identification of equipment is based upon the relative positions of the units. Approximate dimensions of the storage tanks are also presented in the following table.

SUMMARY OF EQUIPMENT AND FACILITIES
AT THE OMSK PETROLEUM REFINERY
(ITEMS ARE KEYED TO FIGURE 3)

Area	Functional Description	Equipment*
A	Crude Oil Storage	10 Support buildings 31 Cylindrical tanks 24 diam. 80 ft. (24 m) 1 diam. 30 ft. (9 m) 6 diam. 20 ft. (6 m)
B	Transfer Facility	4 Loading racks 11 Support buildings 5 Cylindrical tanks 3 diam. 80 ft. (24 m) 2 diam. 40 ft. (12 m) 17 Horizontal tanks

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Area	Functional Description	Equipment*
C	Crude Oil and Products Handling and Storage	24 Support buildings 227 Cylindrical tanks 3 diam. 100 ft. (30 m) 9 diam. 80 ft. (24 m) 85 diam. 70 ft. (21 m) 2 diam. 60 ft. (18 m) 37 diam. 55 ft. (17 m) 22 diam. 45 ft. (14 m) 6 diam. 40 ft. (12 m) 8 diam. 35 ft. (11 m) 47 diam. 30 ft. (9 m) 8 diam. 15 ft. (5 m) 14 Horizontal tanks 1 Water basin
D	Construction Material Storage/Support	13 Support buildings
E	Lubricating Oil Production	
	(1) Support	1 Pipe furnace 1 Bank of accumulators/cooling coils/ heat exchangers 32 Support buildings 101 Cylindrical tanks 6 diam. 80 ft. (24 m) 2 diam. 60 ft. (18 m) 4 diam. 50 ft. (15 m) 6 diam. 45 ft. (14 m) 15 diam. 35 ft. (11 m) 6 diam. 30 ft. (9 m) 23 diam. 25 ft. (8 m) 24 diam. 20 ft. (6 m) 15 diam. 15 ft. (5 m) 4 Horizontal tanks
	(2) Possible Clay Treating	1 Pipe furnace 2 Possible clay treating towers 4 Banks of accumulators/cooling coils/ heat exchangers 7 Support/processing buildings 48 Cylindrical tanks 17 diam. 30 ft. (9 m) 13 diam. 25 ft. (8 m) 3 diam. 20 ft. (6 m) 15 diam. 15 ft. (5 m)
	(3) Possible Dewaxing	4 Possible dewaxing units each containing: 1 Bank of accumulators/cooling coils/ heat exchangers 3 Support/processing buildings 2 Support buildings 15 Cylindrical tanks 9 diam. 25 ft. (8 m) 6 diam. 20 ft. (6 m) 9 Horizontal tanks
	(4) Possible Deasphalting	4 Possible deasphalting units each containing: 1 Pipe furnace 1 Bank of accumulators/cooling coils/ heat exchangers 5 Processing columns 2 Support/processing buildings in 3 units and 1 support/processing building in the remaining unit 3 Horizontal tanks 2 Support buildings

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Area	Functional Description	Equipment*
	(5) Possible Solvent Extraction	4 Possible solvent extraction units each containing: 2 Pipe furnaces 7 Processing columns 1 Bank of accumulators/cooling coils/heat exchangers 1 Processing building 3 Cylindrical tanks diam. 15 ft. (5 m) 4 Horizontal tanks 1 Possible solvent extraction unit containing 2 Pipe furnaces 7 Processing columns 2 Banks of accumulators/cooling coils/heat exchangers 1 Processing building 7 Horizontal tanks 4 Support buildings 31 Cylindrical tanks 26 diam. 30 ft. (9 m) 2 diam. 20 ft. (6 m) 3 diam. 15 ft. (5 m)
	(6) Unidentified Processing	4 Processing columns 3 Banks of accumulators/cooling coils/heat exchangers 15 Processing/support buildings 49 Cylindrical tanks 2 diam. 60 ft. (18 m) 6 diam. 35 ft. (11 m) 15 diam. 30 ft. (9 m) 2 diam. 20 ft. (6 m) 24 diam. 15 ft. (5 m) 8 Horizontal tanks
F	Administration/Support	13 Administration/support buildings
G	Unidentified Processing	8 Processing units: 2 Processing units each containing 5 Processing columns 1 Bank of accumulators/cooling coils/heat exchangers 2 Pipe furnaces 3 Support/processing buildings 2 Processing units each containing 6 Processing columns 1 Bank of accumulators/cooling coils/heat exchangers 2 Processing/support buildings 1 Horizontal tank 1 Processing unit containing 2 Pipe furnaces 4 Processing columns 2 Banks of accumulators/cooling coils/heat exchangers 5 Processing/support buildings 1 Processing unit containing 5 Processing columns 1 Bank of accumulators/cooling coils/heat exchangers 1 Support/processing building 2 Horizontal tanks 1 Processing unit containing 4 Processing columns 1 Bank of accumulators/cooling coils/heat exchangers 3 Processing/support buildings

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Area	Functional Description	Equipment*
G	Unidentified Processing (Continued)	1 Processing unit containing 3 Processing columns 1 Processing/support building 4 Cylindrical tanks diam. 15 ft. (5 m) 4 Horizontal tanks 4 Support buildings 71 Cylindrical tanks 2 diam. 70 ft. (21 m) 5 diam. 40 ft. (12 m) 6 diam. 35 ft. (11 m) 19 diam. 25 ft. (8 m) 33 diam. 20 ft. (6 m) 6 diam. 15 ft. (5 m)
H	Possible Thermal Cracking	1 Possible thermal cracker containing 1 Bank of possible processing equipment 3 Pipe furnaces 1 Bank of accumulators/cooling coils/ heat exchangers 4 Processing/support buildings 3 Cylindrical tanks diam. 15 ft. (5 m) 2 Horizontal tanks 8 Support buildings 5 Cylindrical tanks 2 diam. 45 ft. (14 m) 2 diam. 35 ft. (11 m) 1 diam. 30 ft. (9 m)
I	Products Handling and Storage	10 Support buildings 101 Cylindrical tanks 1 diam. 50 ft. (15 m) 16 diam. 40 ft. (12 m) 22 diam. 35 ft. (11 m) 3 diam. 30 ft. (9 m) 54 diam. 25 ft. (8 m) 5 diam. 20 ft. (6 m) 18 Horizontal tanks
J	Crude Oil Distillation	6 Crude distillation units, each containing 5 Processing columns 2 Pipe furnaces at two units and one at the four other units 1 Bank of accumulators/cooling coils/ heat exchangers 1 Compressor/control building 13 Support/processing buildings 21 Cylindrical tanks diam. 15 ft. (5 m) 43 Horizontal tanks
K	Unidentified Processing	11 Support/processing buildings 11 Cylindrical tanks 2 diam. 35 ft. (11 m) 7 diam. 30 ft. (9 m) 2 diam. 20 ft. (6 m)
L	Unidentified Processing	2 Processing columns 1 Pipe furnace 6 Banks of accumulators/cooling coils/ heat exchangers 8 Support buildings 22 Horizontal tanks

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Area	Functional Description	Equipment*
M	Catalytic Cracking	3 Catalytic crackers each containing 1 Pipe furnace 1 Reactor 1 Regenerator 2 Catalyst hoppers 1 Bank of accumulators/cooling coils/ heat exchangers 1 Control building 2 Support buildings 1 Bank of accumulators/cooling coils/ heat exchangers 3 Compressor buildings 4 Cylindrical tanks diam. 15 ft. (5 m)
N	Vapor Recovery	2 Possible light ends units containing 7 Processing columns 2 Banks of accumulators/cooling coils/ heat exchangers 1 Control building 3 Support buildings 9 Horizontal tanks 1 Processing unit containing 4 Processing columns 1 Bank of accumulators/cooling coils/ heat exchangers 1 Control building 1 Cylindrical tank diam. 45 ft. (14 m) 3 Support buildings 27 Cylindrical tanks 1 diam. 70 ft. (21 m) 1 diam. 55 ft. (17 m) 8 diam. 35 ft. (11 m) 3 diam. 30 ft. (9 m) 4 diam. 20 ft. (6 m) 4 diam. 15 ft. (5 m) 6 diam. 10 ft. (3 m) 43 Horizontal tanks
O	Packing and Shipping	7 Processing columns 64 Support/storage buildings 51 Cylindrical tanks 9 diam. 45 ft. (14 m) 10 diam. 30 ft. (9 m) 15 diam. 25 ft. (8 m) 3 diam. 20 ft. (6 m) 14 diam. 15 ft. (5 m) 6 Horizontal tanks
P	Unidentified Processing	1 Processing unit containing 11 Processing columns 4 Pipe furnaces 1 Bank of accumulators/cooling coils/ heat exchangers 3 Support buildings 1 Processing unit containing 12 Processing columns 1 Pipe furnace 1 Bank of accumulators/cooling coils/ heat exchangers 1 Processing building 6 Cylindrical tanks diam. 45 ft. (14 m)

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Area	Functional Description	Equipment*
Q	Possible Reforming	4 Possible reforming units, each containing 1 Fractionator 5 Reactors 2 Pipe furnaces 1 Bank of accumulators/cooling coils/ heat exchangers 1 Compressor/control building 2 Support buildings 2 Cylindrical tanks diam. 15 ft. (4 m) 4 Horizontal tanks 1 Possible reforming unit containing 1 Pipe Furnace 2 Reactors 1 Fractionator 1 Bank of accumulators/cooling coils/ heat exchangers 1 Control building 5 Support buildings 8 Support buildings 37 Cylindrical tanks 1 diam. 70 ft. (21 m) 2 diam. 50 ft. (15 m) 3 diam. 45 ft. (14 m) 8 diam. 40 ft. (12 m) 1 diam. 35 ft. (11 m) 11 diam. 30 ft. (9 m) 8 diam. 25 ft. (8 m) 3 diam. 15 ft. (5 m) 11 Horizontal tanks
R	Unidentified Processing	1 Processing unit containing 7 Processing columns 1 Bank of accumulators/cooling coils/ heat exchangers 1 Control building 2 Horizontal tanks 1 Processing building with 4 columns on roof 1 Processing building with 2 processing columns 3 Water basins 4 Support buildings
S	Support	8 Induced draft cooling towers 5 Water basins 6 Support buildings
T	Possible Thermal Cracking	2 Distillation units each containing 1 Fractionator 1 Reactor 1 Flash tower 2 Pipe furnaces 1 Bank of accumulators/cooling coils/ heat exchangers 1 Control building 5 Support buildings 8 Cylindrical tanks diam. 55 ft. (17 m)
U	Liquid Petroleum Gas Separation	4 Units each containing 1 Bank of accumulators/cooling coils/ heat exchangers 1 Compressor building 3 Spherical tanks diam. 15 ft. (5 m) 2 Cylindrical tanks (not measured) 8 Horizontal tanks 5 Support buildings

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Area	Functional Description	Equipment*
V	Thermal Cracking	2 Thermal cracking units each containing 3 Reactors 3 Flash towers 1 Fractionator 4 Pipe furnaces 2 Banks of accumulators/cooling coils/ heat exchangers 1 Compressor/control building 1 Support building 2 Cylindrical tanks diam. 15 ft. (5 m) 12 Horizontal tanks 1 Support building
W	Waste Gas Disposal and Support	2 Flare towers 18 Water basins 12 Induced draft cooling towers 14 Support buildings 18 Cylindrical tanks 4 diam. 60 ft. (18 m) 6 diam. 55 ft. (17 m) 8 diam. 25 ft. (8 m)
X	Unidentified Processing	1 Processing unit containing 9 Processing columns 1 Pipe furnace 1 Bank of accumulators/cooling coils/ heat exchangers 1 Control building 9 Processing columns 2 Banks of accumulators/cooling coils/ heat exchangers 4 Processing buildings 2 Support buildings 2 Cylindrical tanks diam. 20 ft. (6 m) 39 Horizontal tanks
Y	Possible Reforming	1 Possible reforming unit containing 7 Processing columns 4 Pipe furnaces 4 Banks of accumulators/cooling coils/ heat exchangers 3 Support buildings 2 Horizontal treatment tanks 5 Horizontal tanks 4 Pipe furnaces 11 Support buildings (1 partially dismantled) 3 Cylindrical tanks diam. 55 ft. (17 m) 5 Horizontal tanks
Z	Possible Polymerization	21 Processing columns 2 Pipe furnaces 4 Banks of accumulators/cooling coils/ heat exchangers 8 Support/processing buildings 10 Cylindrical tanks 2 diam. 55 ft. (17 m) 3 diam. 45 ft. (14 m) 5 diam. 15 ft. (5 m)

*All storage tank dimensions are approximate

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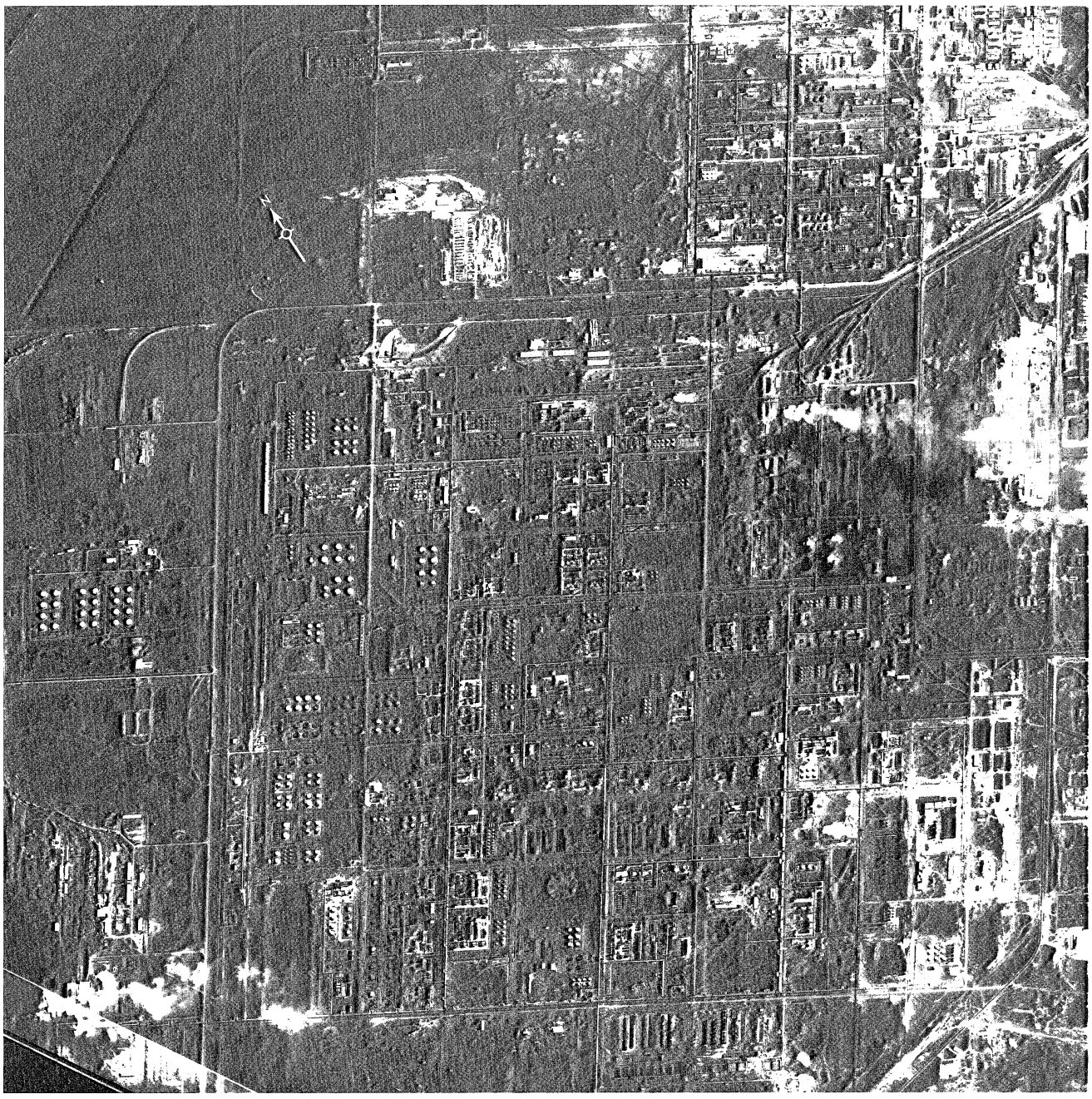

FIGURE 2. OMSK PETROLEUM REFINERY,

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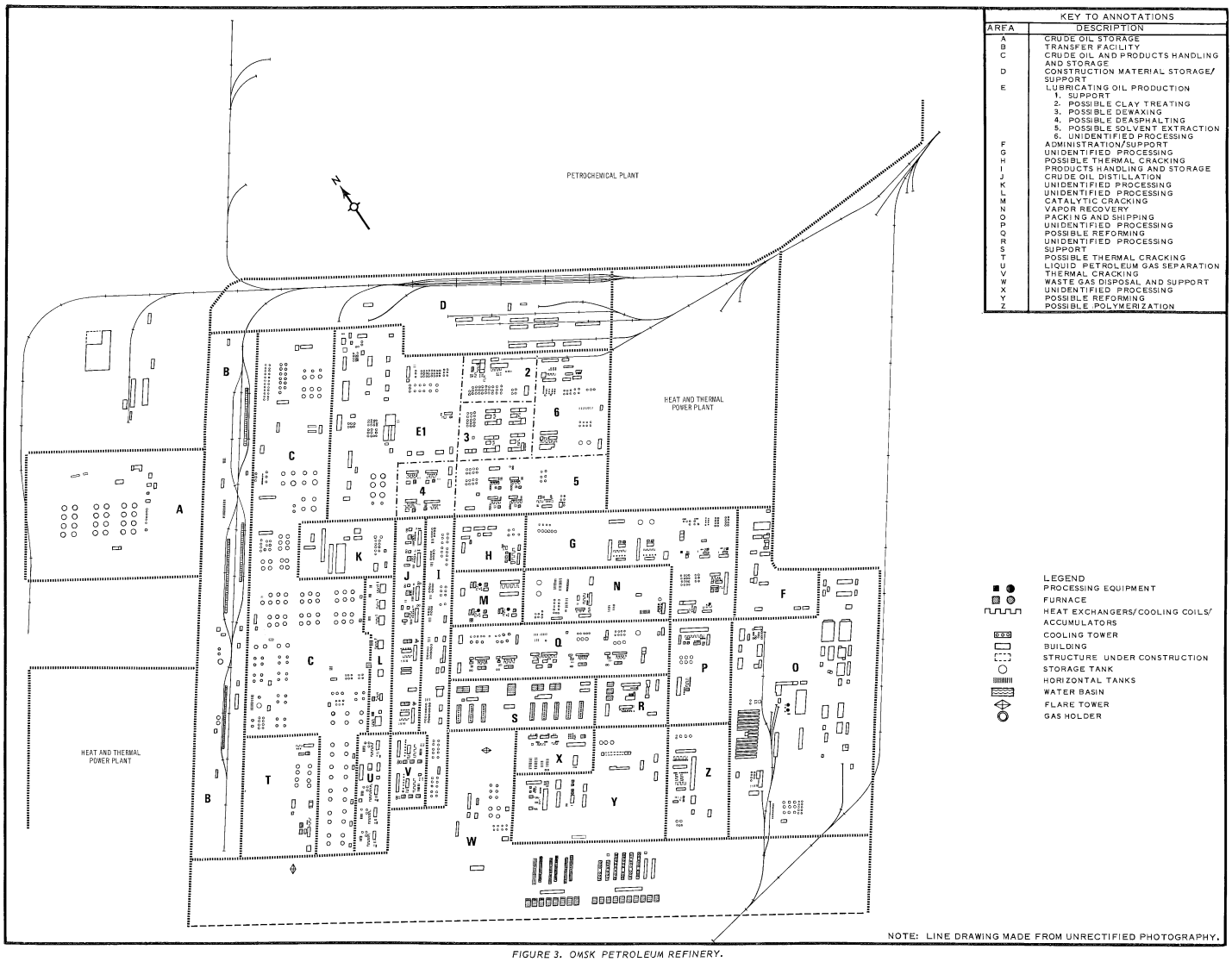

FIGURE 3. OMSK PETROLEUM REFINERY.

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REFERENCES

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Map

8th RTS. US Air Target Chart, Series 200, Sheet M0163-10HL, 3rd edition, Apr 67, Scale 1:200,000 (SECRET

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Requirement

EXSUBCOM - BR-N/001-69

[redacted]

[redacted]

[redacted]

[redacted]